Cissempelos sympodialis (Waritine) and Sida cordifolia with Acute Lung Injury (ALI)
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ABSTRACT

The Acute Lung Injury (ALI) is a life threatening disease with high mortality rates. Due to acute nature, and varying ways in which it can be induced, it is a hard disease to be foreseen. Therefore, proper and effective treatment is lacking. In these experiments we look to plant treatment as an option. Cissempelos sympodialis is found in Brazil and has been used in folk medicine for its therapeutic effects on asthma. The plant and more specifically its alkaloid Waritine in prior research have been proven to be successful in reducing negative symptoms in asthma models of mice. Similarly Sida cordifolia has been traditionally used for asthma and a number of different alkaloids can be derived from this plant, such as chrysin, which have anti-inflammatory properties. Due to the reasons stated, these plants are used as treatment for the ALI model in mice. It was found in these experiments that the plant extract of C. sympodialis proved to be ineffective in reducing total cells, protein levels, and polymorph nuclear cells of the ALI disease in mice. However, the isolated alkaloid, Waritine from C. sympodialis is statistically more positively effective on the ALI inflammation model in mice.

INTRODUCTION

Asthma is a common respiratory disease, but there are other problems that cause similar symptoms as those induced by asthma. These symptoms include eosinophil tissue infiltration, lung remodeling, inflammation, mucosa, edema, and fibrosis. There is much variability in ways in which respiratory complications can occur. Both direct and indirect injury to the lung, can result in airway hyperactivity. Although asthma and (ALI) or its more severe form Acute Respiratory Distress Syndrome (ARDS) are similar in respiratory symptoms, ALI varies in its fast acting acute form, whereas asthma is chronic inflammatory problem.

MATERIALS AND METHODS

ALCOHOLIC FRACTION OF LEAVES (AFL)

C. sympodialis

Waritine is the isolated alkaloid substance being used for treatment.

EXPERIMENTAL GROUP 1: 1 mg/kg dosage

EXPERIMENTAL GROUP 2: 10 mg/kg dosage

S. cordifolia Extract

EXPERIMENTAL GROUP 1: 100 mg/kg dosage

EXPERIMENTAL GROUP 2: 200 mg/kg dosage

RESULTS

C. sympodialis, Waritine Alkaloid

Total Cells

Total Proteins

S. Cordifolia Extract

Mononuclear

Polymorph nuclear

Cytokines

Pro-inflamatory

Anti-inflammatory

Pro-inflamatory

REFERENCES


DISCUSSION

A lot of the treatments for respiratory issues are involving ventilation management. Such include bronchodilators with Nitric Oxide (NO) and surfactant given by inline nebulizer or a bronchoscopy (direct). These type of treatments are more effective for asthma because they are found to improve gas exchange. However, for ALI it does not do much in reducing mortality rates. The nature of plant treatment is that there a lot of plants needed to be investigated for their natural compounds which have potential for medicinal purposes. In our experiments we found the S. cordifolia extract to be statistically ineffective in the ALI model in mice. Waritine at the lower dosage was found to significantly decrease the amount of total cells, decrease polymorph nuclear cells, decrease pro – inflammatory cytokines IL-1 & TNF, and increase anti – inflammatory cytokine IL-10. Success of the isolated alkaloid Waritine, in this experiment leads to the possibility of using C. sympodialis as a future phyto – pharmacological solution for respiratory problems. This is because we now know that C. sympodialis is not only effective at the chronic level, as shown in prior asthma research, but the acute level also. It is important to know that Waritine was more effective at the lower dosage, and therefore future research can be conducted on varying dosages of the treatment. For these experiments pre treatments were given. It would also be good to look into treatment at the same time the disease was given, as well as post treatment options.

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